18-01-95 10:20AM

COOP'S TECHNOLOGY DIGEST

-A Timely Report On The World Of Communications-

Published as a confidential industry newsletter ten times per year by electronics and technology author *Robert B. Cooper*. Reports source checked for accuracy prior to publication; readers are cautioned to conduct their own verification of data prior to formulating business judgements based upon reports here. Data of unverified authenticity may be so-labeled as a guide to reader caution. The publisher draws upon 35 years of leading edge electronic industry media experience but can be mislead by those with clever agendas. *Entire contents Copyright 1995* by Robert B. Cooper; when 'lifting' material please be courteous enough to credit source (*"As reported in Coop's Technology Digest for ...."*). CTD accepts no advertising nor source payment for publication of material here. Making "extra copies" for staff use is prohibited without our written permission. Corporate libraries copying this publication for distribution are in violation of our copyright; please query for reasonable reproduction rights. Subscription rates and contact numbers at bottom of this page.

JANUARY 20, 1995 / ISSUE 95-1-14

-IN THIS ISSUE-

JOHN GORDON RUTHERFORD - Wants To Put You In Cable TV
TV Programming As A Tool To **Gain Entry** -p.3
Cellular Processing and Decompression -p.5
Avoiding A **Confrontation**? -p.7
Laying The Groundwork -p.8
The **Reality** Of Technology -p.9
TECHNOLOGY BYTES / INDUSTRY NEWS UPDATE
Australis **Pay TV** Start -p.12; **RAJ-TV** Scheduling -p.13; PAS-2 Decryption **Hardware** -p.13;
BBC Announces **Digital** TV Schedule / 1995 -p. 14; New CDi **Standards** Proposed -p.15
Status of **MMDS** In New Zealand -p.16; Cable & Fibre Optic TV -p.17
Revisit 1994 Copyright Bill / **TVNZ Shoots Itself In Foot** -p.18
Terrestrial Television -p. 20

REACHING CTD: Telephone (64) (0)9-406-0651; 24 HOUR FAX (64) (0)9-406-1083
NEXT ISSUE DATE: 24 February 1995

COOP'S TECHNOLOGY DIGEST / SUBSCRIPTION INFO

There are ten (10) issues per year on a schedule dictated by industry events. The readership includes telecommunication industry consultants, broadcasters/telecasters, brown goods importers, retail stockists, installation and maintenance firm personnel, educators, regulatory agencies, business investors and Arthur C. Clarke. All copies sent via airmail / Fast Post. Annual subscription NZ$250 per year within New Zealand, US$250 per year outside. In Australia, CTD is represented exclusively by AV-COMM Pty Ltd, PO Box 225, Balgowlah NSW 2093: Tel. (61) 2-949-7417; Fax. (61) 2-949-7095. Outside of Australia, make payment out and mail to:

ROBERT B. COOPER, P.O. BOX 330, MANGONUI, FAR NORTH (NEW ZEALAND)

COOP'S TECHNOLOGY DIGEST

JANUARY 20, 1995 / VOLUME 95-1-14

COOP'S TECHNOLOGY DIGEST is published 10 times each year by Robert B. Cooper; full contents Copyright 1995 and may not be reproduced in any format without our written permission.

John Gordon Rutherford, LL.M.

The most outspoken advocate of the "Information Superhighway" in New Zealand, perhaps the South Pacific, is an attorney turned entrepreneur from Christchurch; John G. Rutherford. The man is an enigma, his vision largely untested but his influence on the information systems available to New Zealanders in the 21st century could be considerable.

Rutherford has been antiestablishment for most of his 31 year business career. In a business society where being "inside" has been the only practical route to success, Rutherford's choice to function "outside the loop" has possibly been a serious brake on his ultimate rate of successes. To fully appreciate his position relating to the Information Superhighway demands that you better understand the man himself.

Rutherford's command of the leading edge technologies upon which the Superhighway will be built is considerable. He disarms the so-called experts in the field by admitting "*I know just enough to be dangerous*" and after they have stated their own position, he asks probing questions which often leave the experts somewhat bewildered. His Gold Medallist status in Master of Laws no doubt equipped him for the often elusive high tech business world where corporate executives are seldom themselves well founded in the technology. For more than a decade Rutherford has courted and won the acquaintance of high tech and entertainment business leaders world-wide. That he can direct dial and go directly through to studio heads in Hollywood, cable TV CEOs in Denver and broadcast network heads in Europe is part of the mystique of John G. Rutherford. By routinely attending high tech trade shows around the globe, searching out leaders in each field and making himself known to them, Rutherford has developed a "stable of acquaintances" matched by few others in the Pacific region.

Rutherford's vision for the 21st century Information Superhighway begins with a series of patents he holds. He fully understands that the Superhighway must be bi-directional to be effective; information must flow from the server (source) to the consumer (user) at the instruction of the user. He believes this rules out a number of established information delivery systems:

1) Over the air television broadcasting, which is one-way in transmission;

2) On-paper printed magazines and newspapers which travel from the source to the user;

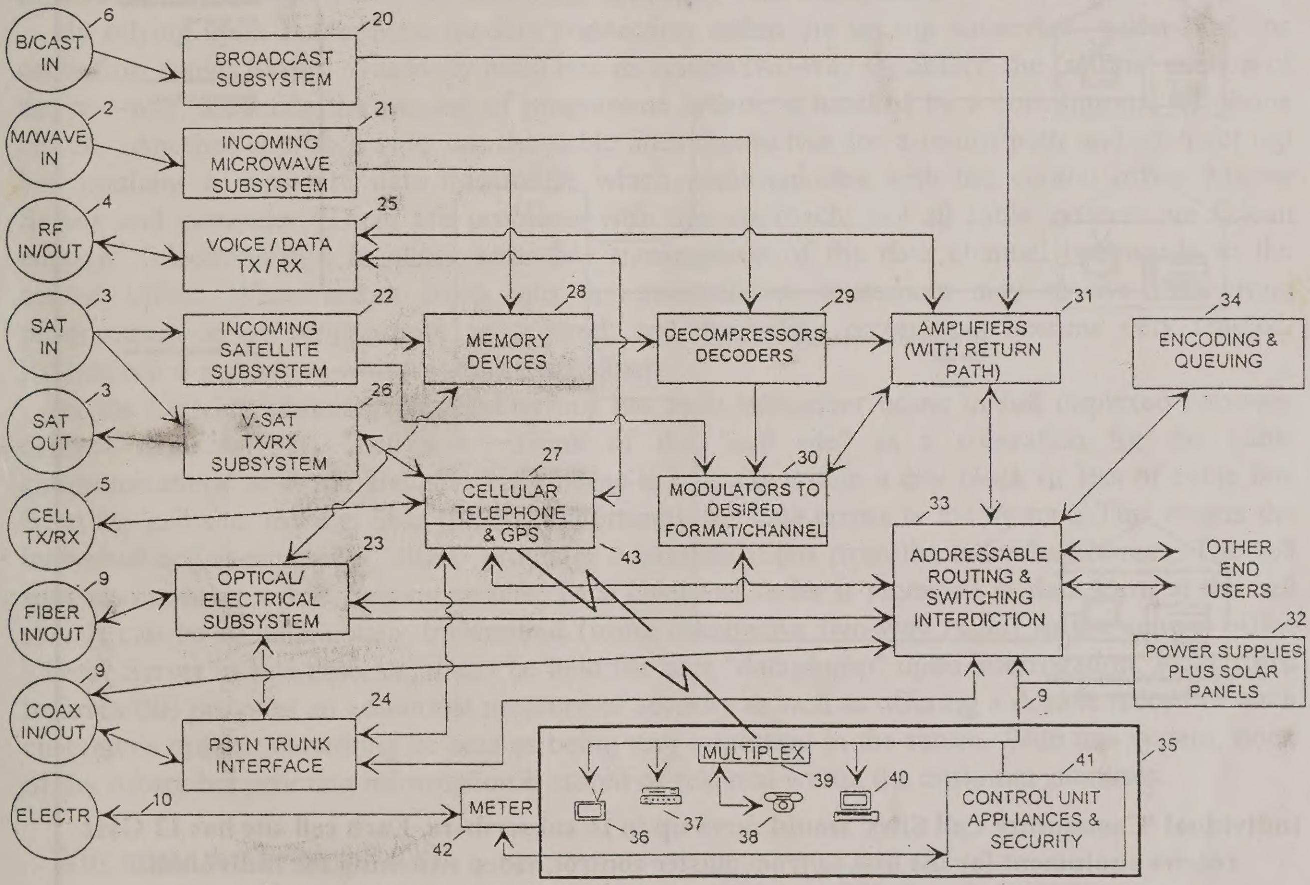
He also rules out likelihood that conventional cable television, itself a one-way system, will satisfy the user demand for bi-directional, "interactive," communications. But he finds within the cable TV framework the nexus of a bi-directional and interactive system for the future.

TV Programming As A Tool To Gain Entry

Rutherford and local partners formed PacSat Communications in 1993 with the announced intention of building a cable TV system for Greymouth. This South Island, west coast community of approximately 4,000 was, at that time, receiving TV1 and TV2 with no prospect for service from either TV3 nor the SKY Network channels. PacSat planned to bring in TV3, to add a few (as then available) satellite programming channels and round out the initial offering with a locally generated "community channel."

There was modest community support, but considerable broadcast industry opposition. By being "outside" the loop and not including firms such as TVNZ nor TV3 in his plans, Rutherford was quickly facing a battery of quite carefully orchestrated opponents. TV3 advised him they could not, would not "sanction" his use of their signal for his cable system (CTD: 9312, p.32). SKY Network, partially owned by TVNZ, likewise slammed the door in his face as he attempted to negotiate permission to use their signals in Greymouth (CTD: 9401, p.16).

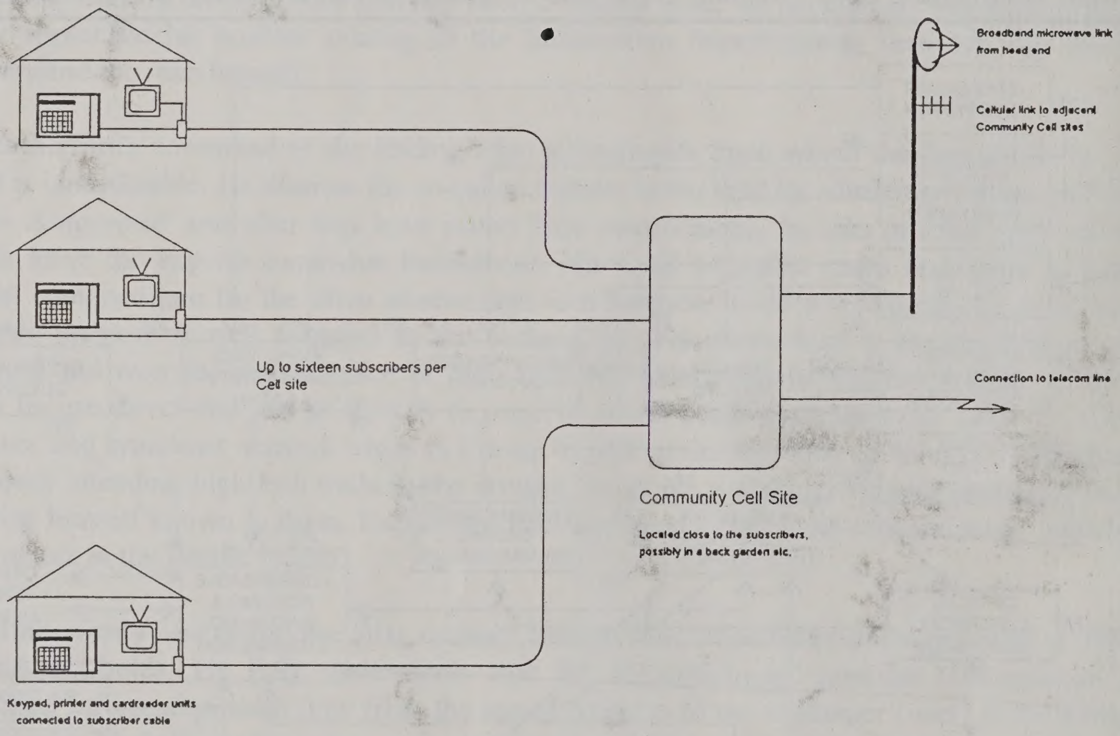
PacSat was not individually singled out for this treatment; Kiwi Cable at Paraparaumu had previously been given the identical treatment by the "networks" when it sought to negotiate use-rights for various over the air signals. The networks, of course, have maintained from the outset of the very limited cable TV here that they are not opposed to such a service. As proof of their "willingness" to "allow" cable TV services to carry their broadcasts, they cite agreements that allow a BCL operated test cable system in Whitby to use their signals (CTD: 9407, p.8) as well as the Telecom hybrid fibre optic / coaxial cable tests in Auckland (CTD: 9309, p.11). It has not



ESSENCE of Rutherford's patents marries several separate disciplines into an integrated system

gone unnoticed that in both the BCL and Telecom agreements, one or more of the telecasters have a direct ownership interest or link to the cable system operators. PacSat is outside the "loop" and by not being a part of the corporate structure of TVNZ, TV3 or SKY, it would appear to be disadvantaged in its ability to negotiate programming rights agreements.

Rutherford considered this a temporary obstacle, convinced that with the appearance of new satellite delivered programming services in 1994 / 1995, he would ultimately have access to the variety of programming he requires to operate a profitable cable TV business. But cable TV programming was not a be-all, end-all for his master plan. He apparently believes he needs just enough desirable, exclusive to cable programming to entice the homes in a community to subscribe to his service. His real goal is to have a thin, pencil size piece of cable (coaxial or ultimately fibre optic) connecting the homes of a community to a central master-server site. Rutherford's business plan, buried beneath the cable TV surface plan, is for a service that is directly competitive to the telephone company. Which brings us, full loop, back to his patents and the design of the perhaps premature cable system now functioning in Greymouth.


Broadband microwave link from head end
Cellular link to adjacent Community Cell sites
Up to sixteen subscribers per Cell site
Connection to telecom line
Community Cell Site
Located close to the subscribers, possibly in a back garden etc.
Keypad, printer and cardreader units connected to subscriber cable

Individual 'Community Cell Sites' would serve up to 16 subscribers. Each cell site has 12 GHz receive equipment for the link to/from master control, video switching for individual programmes to homes, telephony switching equipment and serial data multiplexing.

Cellular Processing and Decompression

Rutherford's system borrows technology from a number of indirectly related disciplines. They are as follows:

1) From cable TV he is using coaxial cable (now, fibre optic in future) to wire into each home.

2) From the wireless cable TV world, he is borrowing the use of microwave transmitters to distribute the programming to "cell sites."

3) From the cellular telephone industry he is borrowing the concept of individual cell sites, typically one per community "block" of homes.

4) From the telephone company he is borrowing bi-directional (two-way) communications between each individual home and the "Master-Server" office facility.

He marries all of this together with his patented "Cellular Vision" concept, about which he is remarkably open. The primary patent deals with the interrogation of customer orders and switching of the customer generated data stream at the individual cell sites. Cable TV in its most developed format does something similar, but maintains billable records for the individual customers either within the customer's home (internal to the set-top converter box), or, at a central office. Most cable firms prefer to have each of the set-top boxes not only act as an order box, but to also store the data reflecting each order in internal memory. Cable firms exploring this leading edge typically use a standard telephone in conjunction with the set top unit and through a modem interrogate each box on a schedule. When interrogated via the phone line connection, the box empties its billable record of orders from that location through the telephone modem connection to the cable firm's central office computer. Rutherford is not happy with this system.

By relying upon a telephone modem connection within the set top converter / order box, the cable firm avoids having to actually build into its system two-way capability; the "return" portion of the two-way, including the placing of programme orders, is handled by a conventional telephone circuit. Another approach is to use the cable lines themselves for a return path and each set top box contains a miniature data transmitter which communicates with the central office Master Server and computer. There are problems with this approach; not all cable systems are "clean enough" (electronically) to allow error-free transmission of the data channel backwards to the central office. When errors creep into the transmission, customers may receive the wrong programmes or no programmes as ordered; and the billing record can become very tangled. Rutherford is not happy with this approach either.

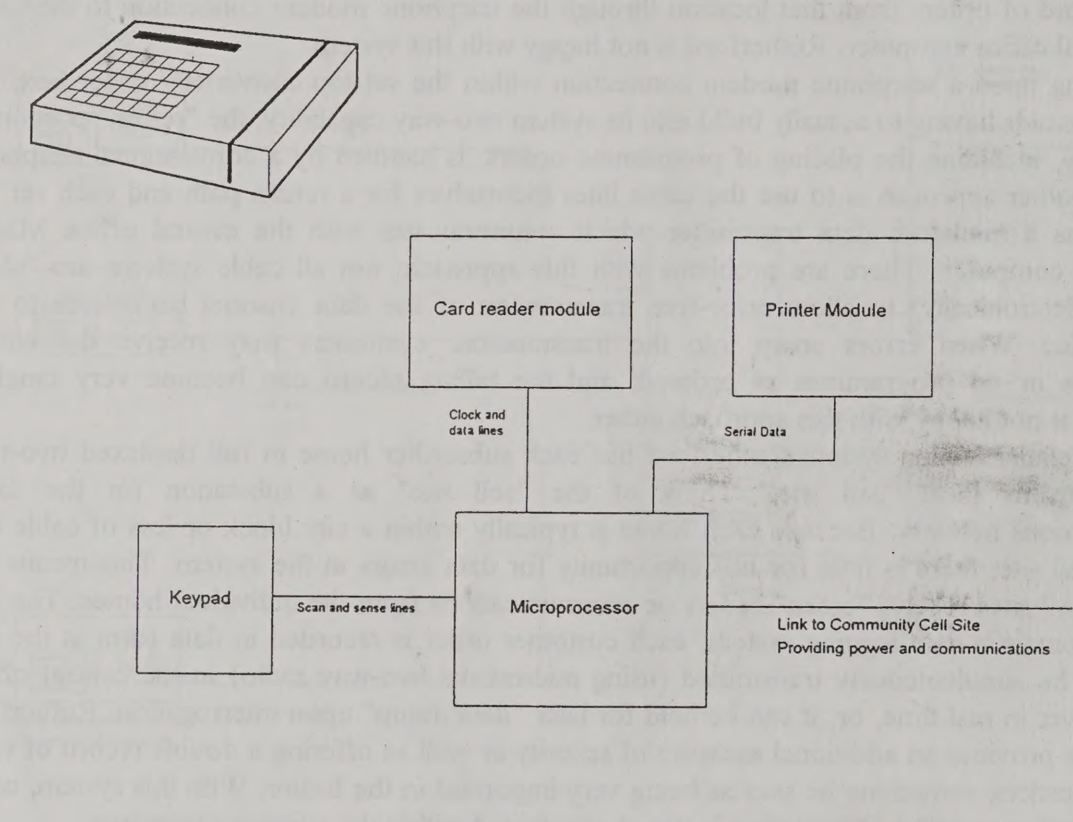
In the Cellular Vision system Rutherford has each subscriber home in full duplexed two-way contact with its local "cell site." Think of the "cell site" as a substation for the cable communications network. Because each home is typically within a city block or less of cable line from the cell site, there is little (or no) opportunity for data errors in the system. This means the individual cell sites receive "clean" orders or communications from the individual homes. The cell sites also contain a data logging system; each customer order is recorded in data form at the cell site. It can be simultaneously transmitted (using microwave two-way radio) to the central office Master Server in real time, or, it can be held for later "data dump" upon interrogation. Rutherford believes this provides an additional measure of security as well as offering a double record of each customer's orders; something he sees as being very important in the future. With this system, none of the subscriber ordering information is stored or retained within the customer premises.

Why might that be important?

Rutherford has been explaining his system to merchandising chains and betting agencies in the Pacific. He believes one of the biggest money spinners will be horse racing and the ability for the subscriber to place bets in real time from his home as if he (or she) were at the track or in a TAB office. Rutherford:

"*This system is designed to provide a fraud proof instant* (funds) *transfer system appropriate for betting on horses and other sudden death transactions. Imagine what is possible with a typical 'store and forward' system: The punter places a bet and his horse loses. If he knows the only record of his bet is inside of the set-top box sitting there on his TV, can you imagine how many set top boxes would be destroyed 'accidentally' before they can be interrogated from the central office*!"

Rutherford's vision extends beyond the horse racing scenario to the commercial banking system. "*We have had visits from the electronic heads of the main banks and they have become interested in the concept of true home banking. Toll free numbers, using a credit card and the*



Cellular Vision subscribers would have a self contained controller that includes a standard card reader, printer module, keypad for command entry and microprocessor PCB.

telephone company or Clear is one such system. We would carry it the next logical step through a set top box that accepts the bank customer's credit or cash card. Now the customer, our cable subscriber, could contact a merchant or the bank through the cable system lines, initiate a purchase or charge, insert his or her card into the set top box and be off in a matter of a minute or less."

A similar system under trial in Quebec dedicates cable system bandwidth to the transmission via digital compression of full pages from catalogues. The home shopper sees something of interest and using the hand held remote control follows on screen prompts to either order the product or request additional information and pricing. Department stores participating in the project have assembled "video presentations" for many of the products they handle and the customer can request a display of the product in some detail by following on screen prompts. Rutherford believes that is a part of the information explosion now coming.

"If we only duplicate the services now available through Telecom and Clear, we haven't advanced one step; even if we do it quicker and better and cheaper. But if we can marry all of the telephone, cable, and merchandising services together in one system, then we have something truly unique!"

This past November Rutherford approached Westpower (Greymouth) with a carrot.

*"With significant change in the energy industry occurring, it is suggested that utility companies in the communications and energy industries will gain strength by joint ventures which produce new revenue streams. (*In the United States*) some electrical utilities have taken the initiative to put in fibre optic cabling on their poles, and then leasing surplus (*bandwidth*) capacity to cable television companies. They have found it sufficiently worthwhile to make this investment in fibre for the purpose of getting closer to the customer, quite apart from the additional revenue from communication services."*

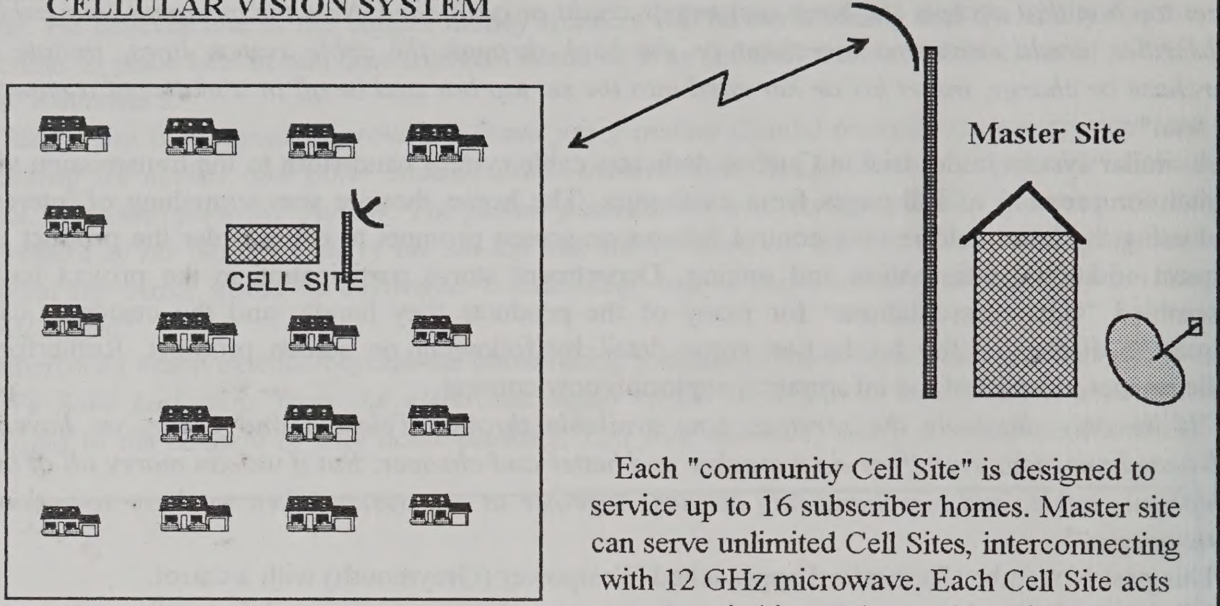
Rutherford's Cellular Vision system is in fact a complete broad bandwidth two-way communications network; at least on paper. In this respect it leap frogs the limited bandwidth restrictions of telephone systems and by using relatively low cost point to point microwave it also leap frogs the limitations of traditional cable. Cable TV has always been somewhat restricted by the need to have a nearly contiguous run of cable from the central facility (headend) to each customer. While in some major metropolitan areas microwave is employed to interconnect isolated suburbs with the central office Master Server, nobody has previously suggested that the microwave network be two-way in operation allowing the transmission of programming from the Master Server to any individual subscriber, and, also allowing any subscriber to communicate backwards through the system in real time. This plus the placement of control and transaction record recording equipment at each cell site is the essence of the patents.

By breaking each community down into bite (block) sized coverage districts, by installing a Cellular Vision microwave substation within each block or district, Rutherford adds a final dimension to his system which will bear watching: He can also function as a full local telephone company, through his own network, without as much as a single connection to the local Telecom network.

Avoiding A Head To Head Confrontation

Cable television systems entering the telephony business is not a new concept; nearly 500,000 UK homes now take both telephone and TV service from their local cable firms. They do so because cable TV, at least in the UK, has been able to undercut significantly the pricing of British

CELLULAR VISION SYSTEM



Each "community Cell Site" is designed to service up to 16 subscriber homes. Master site can serve unlimited Cell Sites, interconnecting with 12 GHz microwave. Each Cell Site acts as a switching and record keeping "sub station" for a region within the community.

Telecom. Rutherford admits his own market analysis is not yet mature in this area, but he has planned into his patented system the full duplex capability for at least unrestricted local calling.

Here is how it might work.

1) Cable TV customers would be given a set-top box that includes a modular telephone jack.

2) The same two-way cable system that interconnects their home with the cell site would carry the customer's telephone calls back to the cell site.

3) At each cell site would be switching gear. If the call is going to a home served by the same cell site, such as a neighbour in the same block, the call never leaves the cell site equipment.

4) If the call is going to a subscriber served by another cell site, the transmission is relayed to the central office via 12 GHz microwave, directed to the appropriate subscriber cell, and then to the number being called.

5) If the call is going outside of the Cellular Vision service area, Rutherford expects to be able to arrange that through Telcom and Clear.

Rutherford talks in terms of flat local call rates in the $5 per week region when the service is combined with cable television service; well under existing Telcom residential rates he claims.

Laying The Groundwork

Parent firm Civic Communications Ltd. holds Network Operator status from the Ministry of Commerce, essentially a "license" to bury or string cables and install equipment within the public rights of way. The 12 GHz microwave frequencies in use were secured on a developmental basis from the Ministry of Communications; to date the Ministry has not elected to auction off these frequencies and says it is uncertain how they might ultimately be used within New Zealand. The frequency bands in use for Greymouth (and planned elsewhere) coincide with US bands used by cable TV systems there. Rutherford has been able to locate second-hand "AML" microwave equipment manufactured by Hughes Microwave for use here.

The coincidence of AML frequencies with portions of the Ku satellite broadcast band allows Rutherford to fashion Cell Sites utilising equipment originally intended for direct to home (DTH) satellite receiving systems. Additionally, Cell Site signal amplification and splitting equipment is manufactured to order by an Auckland firm with which Rutherford claims an association. The combination of used transmitter equipment, modified DTH equipment and New Zealand manufacture of distribution electronics has made it possible for PacSat to develop the Greymouth system for a minimal outlay.

PacSat partner **Bernie Monk** told CTD in September "*We have sold franchises to this technology to cable TV system planners in Auckland, Gore, Queenstown and Invercargill.*"

The Reality Of The Technology

Rutherford now admits the Greymouth system has not become a roaring commercial success. A failure to produce live TV3 service into the community (it presently comes over from Christchurch and is shown one week delayed on videotape), and a series of errors in judgement or planning for use of the limited satellite TV services available during 1994 contributed to the continuation of the "test mode" for the system through virtually all of '94. Rutherford is not discouraged by any of this.

"*From the outset I realised we were developing brand new technology and simultaneously battling a well entrenched broadcasting system. But we felt it was very important to transfer the technology from the paper form of the patents to the real world of stringing cable and installing microwave cell sites.*"

The transfer to the streets is not yet complete as the system currently operating in a test mode within Greymouth is primarily a one-way cable TV service that has replaced traditional "trunk" (mainline) cables with 12 GHz microwave. The glitz and glamour of two-way transactional ordering, automated recording of orders by a host computer and an alternate to the local Telecom service remains "on paper."

If the patented system has had a difficult time becoming established within New Zealand, it may be faring better overseas. Rutherford claims he has franchisees in Australia and South Africa although few of these have been identified to date. Interactive Telecommunications Network (Intenet) in Australia is said to be developing joint venture agreements with power companies. According to Rutherford, "*The power company lays the cable on its poles and makes house connections as its contribution towards a joint venture. Revenue is shared in association with other parties involved, including local businessmen setting up community TV channel systems.*"

Rutherford has also been instrumental in convincing town councils that new regulations are required to make it possible for Cellular Vision to happen. He cites Hamilton where he claims the council has altered their ordinance to allow a housing block to be served by a single dish collocated with utility equipment.

"*We have pointed out to town councils the wisdom of getting communication services and other utility clutter off the streets, away from public view.*"

In Greymouth, PacSat began installing its system without the formality of an agreement to use poles owned by Westpower. They could do this, for a limited area, because their cables would not be crossing public rights of way (streets); each Cell Site serves only homes that can be reached from the Cell Site using relatively small diameter coaxial cable. By avoiding street crossings, PacSat was able to "go around" Westpower and its pole network, and also not have to dig up any streets which might require Greymouth council approval. Rutherford says that by relying on the broad powers inherent with the Network Operator status PacSat has been able to move quickly and without burdensome (and often expensive to satisfy) local regulations. Rutherford believes that land owners are willing to recognise the long term value of having a coaxial cable service available to their parcel and should not object if the workmanship is well done and the people understand the project. BCL took a similar approach in the cabling of the Wellington Whitby area (CTD: 9307, p.2) and also avoided any use of Telecom or power company poles.

Within a block a site is negotiated with a parcel owner. This may involve eliminating or reducing the cost of cable connection to the site owner. Unfortunately each site also requires AC power service and that means the agreeing parcel holder must also agree to allow the available AC power service to be "tapped" to run the modest equipment located at each Cell Site installation. The economics might look like this on paper:

a) Cell Site potential homes: 16
b) In trade for land use and power: 1 home
c) Actual number of paying subscribers per Cell Site: 15 (maximum)

The Cell Site equipment (mast and 12 GHz receiving dish approximately 1m in diameter; downconverter which frequency translates the 12 GHz signals to standard VHF TV channels, VHF amplifier and [typically] 16 port 'splitter' unit) is installed, power connected, and turned on. Next lines are run from the Cell Site to each of the homes within the "cell block;" each home has its own "home run" (dedicated) line from the Cell Site. If the home agrees to take the service at that time, a drop line is then run from a junction box typically located along the fence line into the home. This "drop line" may be buried, or follow a sidewalk or fence line to the home. Where additional protection is required, the cables are placed inside of PVC 'ducting.' If the home does not wish service, the line dedicated to the home is terminated and available for future service along

IMPORTANT MESSAGE

To: Home owner or occupant
From: Pacsat Communications Ltd.

Cable & ducting for Cable T.V. and other services are being installed in your street block in the coming week. It will be necessary for our technicians to carry out work on or near the rear of your boundary during that period. The cables will generally be attached to the underside of boundary fence rails, and will be inside of ducting in some cases. As with utility services such as telephone, water and sewer, this reticulation will enhance the value of your property, whether or not you personally wish to use any of the services.

One of our technicians will call on you, but if you are not available during the day we would recommend that you call us and make an appointment, if you want a connection into your home.

In addition to the multiple T.V. channels, future services will include security monitoring, FM radio, home-shopping, and alternate telephone services. Customers who connect during our launch period receive 1 months, no obligation, free viewing and a discount on the installation charge.

If you require further information on the additional television services we are bringing to Greymouth, please do not hesitate to contact us at Greymouth 768-4757 or Christchurch (03) 3662-661.

the rear boundary line. Once again, this is a remarkably similar system to that employed by BCL in its Whitby suburb test cable system reviewed in CTD for this past July (CTD 9307). As each new Cell Site area is scheduled for installation, the home owners in the block receive a written notice of the intentions of Pacsat (see bottom of page 10). Under the Network Operator status, Pacsat has the legal right to run cables within dedicated utility rights of way. Land owners may also object and there is a statutory procedure for resolving such objections. However, that this "right" extends to property boundary lines not identified as "dedicated utility easements" is an unanswered fine point in the law. Rutherford claims there have been few problems with this in Greymouth to date; we should point out the notice form appearing at the bottom of page 10 here was supplied to CTD by a Greymouth resident who did not wish to allow Pacsat cable onto their property.

BCL found, as we reported in July (p.6), that their approach was time consuming and expensive to administer. Where Rutherford merely "notifies" land owners of Pacsat plans to install cabling "on or near" their property, BCL in Whitby felt obliged to obtain from each parcel owner a signed agreement entitled 'Consent to Install and Maintain Cable.' Under the terms of being a Network Operator (a class also enjoyed by BCL), both firms have the legal right to install cable and equipment provided suitable 'notice' is given. Rutherford elects to give notice and run cable; BCL elected to obtain a legally binding agreement with each land owner impacted. As we reported in CTD 9407:

"(BCL believed) *fence line cable runs were less expensive (*than utility easement burial of cables and placement of equipment housings at 50m intervals*). In reality, they learned, it is a more expensive approach primarily because each of the property owners had to be dealt with individually, each had to be convinced they should sign the 'Consent' form, and each required (*BCL*) management time to work through to the signing of the form.*"

There are other considerations. BCL's Consent Form made it crystal clear that the land owner had no "ownership rights" to any cable or equipment placed within his / her boundaries. Rutherford professes not to be concerned about this aspect "*because each home has its own dedicated cable from the Cell Site. We don't have to enter their property to cut them off; we do it at the Cell Site.*" BCL, contrary, runs its trunk and distribution cables along the fence lines and an irate property owner could sever service for all "down line" from a cut if he became angry with BCL for any reason. In fact, one of the "terms" of the Consent agreement includes:

"*To use best endeavours to ensure the cable, conduit, fittings and electronics comes to no harm.*" Had either firm elected to run all of their cables (except the individual house drop portions) within the utility easement areas this protection against harm would have been built into the terms of utility easement; by creating new cable run areas, many Network Operator "rights" are surrendered.

Yet another consideration is the actual property rights to the cable. Rutherford may not be concerned that a home owner could snap his own cable but most world class cable TV operators would be very concerned about this. And when it comes time to sell off the cable system, those utility easement run lines and installed equipment have a clear asset value; lines run along fence boundaries have none.

Copyright Fall Out

At midnight December 31, Greymouth "lost" its videotaped TV3 service; a direct result of the new (1994) Copyright Law which went into effect on January 1st. Rutherford hopes to work out an acceptable 'fee' schedule with TV3 but is not optimistic. TVNZ has also advised Rutherford Pacsat can expect to pay them fees as well (see page 18, this issue).

TECHNOLOGY
BYTES

...BITS and BYTES you may have missed in the rush to make a buck ...BITS and

January 20, 1995 / ISSUE 95-1-14

SATELLITE TV AND RADIO

AsiaSat II will be "late." The original planned launch date was to be April-May with STAR's new multiple channel free-to-air (plus optional pay) channels in digiSTAR (CDV) format to begin in July. STAR is still quoting July as a start date but CTD understands August is a more likely month for the new STAR service. A number of 4m size (plus) New Zealand dishes are in the planning stage for this service which should be a major asset to would-be cable television system operators here and in Australia. STAR TV aside, AsiaSat 2 has also leased ten transponders to Australia's Network Nine, five to British Telecom and one to Germany's Deutsche Welle. **Australis (Galaxy)** pay TV for Australia plans a January 26th start of its initial service offering using General Instruments Digicipher (NTSC) for satellite delivery on Optus transponders 10 and 11H. Australis says they will launch with Premier Sports Network. Some of the programming for the Premier "telecast day" is being shipped to Australia by Liberty/Prime Sports over PanAmSat PAS-2; typically between 0530 and 1030 UTC. CTD sister publication SatFACTS Monthly has engineered tests of the Optus T10 and 11 transponders throughout New Zealand and reports in the January 15th issue that dishes in the 1.2 to 1.5m size will provide error-free digital TV reception for the service in New Zealand. Although Australis (Galaxy) plans only a single (sports) channel at launch, two movie channels and a general entertainment channel are scheduled for later in 1995. Australis has to date shown limited interest in the "bonus New Zealand coverage" available to them on Optus. Present tests (begun in December) are in NTSC Digicipher but Australis plans to convert to PAL Digicipher by the end of 1995. Access to the programming will require a special format (GI) Digicipher (model DSR 1500) receiver and subscription since all viewing points are "addressed" with a "conditional access" scheme. SatFACTS will carry a review of the G 1500 receiver February 15th

. **SCOLA**, the world net of educators who share daily television broadcasts of national news via satellite, began tests in the US using digital video the first week in January. SCOLA, which uplinks 24 hours per day of newscasts gleaned from a world-wide base for the benefit of educational institutions, has chosen a unique Wegener CDV format. They are expanding their US service base to an eventual four video channels using MCPC technology. An Australian group has been urging SCOLA to expand into the Pacific but funding for the transponder space is an unresolved challenge. (SCOLA, PO Box 619, McClelland, Iowa 51548; FAX 712-566-2502)

National Technology University (NTU) in US is testing through February transmission of university and post-university level courses to Pacific region using PanAmSat PAS-2. The transmissions are in proprietary CLI (Compression Labs Inc.) CDV at 3.3 Mb/s 24 hours per day with test card and music between courses. Instruction

PanAmSat PAS-2 UPDATE/ to January 16

Interim analogue service previous in use by (the) Chinese Television Network, Country Music Television has been discontinued in favour of compressed digital video (CDV). GI Digicipher MPEG 1.5 in NTSC is currently being used by ABS-CBN (24 hour Philippines channel); Scientific Atlanta format by CTN and CMT. Analogue service from CNNI, ANBC, Prime Sports, CBS Network and NHK continues on a daily basis in free to air format at this time. Both CBS and ANBC services have rapidly increased hours per day since 1 January, both now approaching near-full-time feeds. CNNI plans to encrypt in analogue using Leitch system (also in use on Intelsat 180 by NHK on TR16) but probably not before April. CNNI free to air fed on Intelsat 180 will be discontinued at about the same time. ESPN is currently running in NTSC B-MAC while Discovery Channel is running in PAL B-MAC. Both services are represented for DTH and SMATV purposes in New Zealand by SKY Network (John Fellet at 09-579-9999); Fellet expects to announce subscription rates before the end of January. National Technology University (USA) is providing compressed digital video programming through February to selected universities and businesses in Pacific on 3767 MHz (vertical polarisation) in custom CLI digital format. CMT appeared on PAS-2 **Ku band** 14 January, approximately 12,415 MHz (1,115 IF) in NTSC, **90cm** dishes(!).

runs from 45 minutes for seminar type series to 6 hours continuous for hands-on laboratory instruction. Major emphasis is on computer science and engineering courses in the test. A number of Universities throughout POR have been invited to participate and each has been provided with a CLI receiver designed to work with the customised CDV format. NTU hopes that by allowing POR institutions to "sample" the advance courses available they will create sufficient interest in the Pacific to warrant full time use of their service here.

Analogue, encrypted or in the clear, services on PAS-2 may continue for some time into the future. Presently, ANBC service is running an average of 18 hours per day, plans expansion within 30 days to 20 hours per day. ANBC has leased a full (54 MHz bandwidth) transponder and could carry either two unrelated analogue services or as many as 20 MPEG CDV services in the bandwidth. ESPN, presently in NTSC B-MAC, also leases a full (54 MHz) transponder and like ANBC could utilise it in a variety of ways. Discovery Channel, presently PAL B-MAC, has a half-transponder (27 MHz) and for it to increase programming services would need to change over to MCPC CDV. Prime Sport is presently in unencrypted analogue and leases sufficient transponder space to continue in this mode for as long as they wish.

No Pacific Ocean Region observers have reported any significant changes in transponder service levels following the change out from Intelsat 508 to Intelsat 511 at 180E. Some observers (New Zealand) report Worldnet service is around 1 dB lower in level while some Australian observers find a similar weakening for one of the IDB operated vidiplexed channels. Intelsat changed out the satellites earlier in December; I511 will operate in a gradually increasing "inclined orbit" mode through the last quarter of 1996 when a new "7" series satellite will replace it.

Hindi movies in addition to (Indian) music videos are planned soon by ATN on RimSAT 142.5E, Kampana Television Corporation's Ricky Dizon advises CTD. The ATN service continues to be widely received by POR dishes in the 3m size range.

RAJ-TV, headquartered in Madras (India) and broadcasting from Rimsat at 130E (**CTD**: 9412, p.20), is actually in Tamil language, not Hindi as previously reported. Service is free to air, advertiser supported, and operated by Madras firm Raj Video Vision which also produces programming for Indian market. Programming is videotaped in Madras and sent via air-courier on cassette tape to uplink in the Philippines to reach 130E. A typical broadcast day begins at 17:30 Madras time (1130 UTC; 0030 NZST) and the schedule for January 12 illustrates:

17:30 - Charlie Chaplin / 18:00 - Tamil Feature Film / 20:30 - Neengal Keetavai / 21:00 - Escape serial / 21:30 - Indian classical music - 22:00 - Star Roundup / 22:30 - Comedy sequences / 23:00 - Indian devotional songs

RAJ-TV operates on a high power global beam transponder (TR -1, 3675 MHz) and is well received on 3m size dishes throughout Australia, New Zealand and much of the (south) Pacific. Direct competitor SUN-TV (TR1+, 3725 MHz) also on Rimsat 130E is on a northern hemispheric beam and is poorly received below approximately 20 degrees south.

A Hindi/English language all-news service (ala CNN) is projected under a partnership of Britain's Financial Times, Hong Kong telecaster TVB and the Hindustan Times which publishes New Delhi's English daily paper. A new Indian (Insat) domestic satellite scheduled for midyear launch will add more than a dozen new satellite transponders to the Indian service region.

PAS-2 PROGRAMMERS and DECRYPTION HARDWARE REQUIRED

Although several of the PAS-2 programmers have not yet announced their encryption format nor the hardware required to access their signals on subscription, those that have done so are as follows:

1) CNNI, will use Leitch analogue encryption, probable cost US$1,500 range for decoders, sources not named.

2) Discovery, now using PAL format B-MAC, quoted at US$1,300; programming access and probable decoders through SKY.

3) ESPN, now using NTSC format B-MAC, quoted at US$1,400; programming access and probable decoders through SKY.

4) Chinese Television Network, now using Scientific Atlanta interim MPEG in NTSC, IRD quoted at US$1,300; programming access through Hong Kong (Bernard Cheung 852-2505-7430). CTN is transmitting two channels in MCPC but only one ("*Timely News Channel*") available in Pacific at this time.

5) Country Music Television elected Scientific Atlanta interim MPEG, IRD quoted at US$1,300; programming will be available through SPACE Pacific and others.

6) ABS-CBN (Philippines) using GI Digicipher (interim) MPEG 1.5 in NTSC, IRD quoted at US$1,500; programming not presently available in South Pacific but announcement expected before start of 2nd quarter.

India's Zee TV, commercially successful over-satellite entertainment service, has acquired UK based TV Asia. Plan is for Zee to expand its present Indian subcontinent service to include satellite delivery to (Indian origin) viewers throughout Europe, Africa and North America.

Turner's TNT and Cartoon Network package of two channels delivered via Palapa satellite for Indonesia and surrounding countries has escalated price for home dish viewers. Originally announced as US$70 per year in November to dish owners in Solomon Islands, Turner's Sydney office jumped it to US$250 per year on 30 December and stating. "This is an extremely volatile business."

In Europe, TNT and the Cartoon Network have been taken off cable systems in France, Belgium pending ruling by European Union but continue to be distributed in UK, Netherlands and Scandinavia. European Union rules require 50% of programming to be created within a European state and TNT/Cartoon channel programming is nearly 100% US in origin.

French 24 hour movie and entertainment pay TV channel Canal Plus is going to terrestrial TV service in New Caledonia using Thomson MPEG format CDV via Intelsat. The terrestrial service operates much like SKY Network in New Zealand using "Nagravision" encoding and providing (US$220) set-top converter / decoder to subscribers who pay US$60 equivalent per month for single channel of service. The service is linked via Intelsat 513 (307E) through North America to Intelsat I180E. The Intelsat link is configured for a pair (2) of MCPC video channels; no announcement as to the possible use of the "spare" spectrum. Additional UHF encrypted outlets are planned for Vanuatu, Tahiti. Direct access through Intelsat for others has not yet been considered.

MTV Europe has selected Philips to provide compressed digital video hardware for its all-Europe pop music channel system. Conversion from present analogue system to CDV is forecast before end of this year.

Sony says it will begin selling Digital Satellite Systems (DSS) in North America sometime between June and August. The Sony system was chosen as the number two supplier for the 150 channel 0.4m Ku Direct TV system with Sony allowed to start marketing its receiver system as soon as Thomson reached the point of having sold 1,000,000 receivers. The DSS launch started in limited US markets last June, has been extremely successful, and Sony believes it will sell 1,000,0000 of its own DSS receiver systems within first year, even while competing with Thomson. Sony plans to market DSS as a part of their vision of an all-digital world using modular product blocks to allow the home owner to gradually replace all audio and video equipment with digital hardware piece by piece while building towards in integrated system.

Thomson is planning second generation DSS receive system to compete with Sony. The ProScan series will be MPEG 2 compatible from the start using chips from C-Cube. The DSS DirecTv constellation of two Ku satellites, each with 75 equivalent CDV channels, will grow by 'one' shortly with the launch of a third satellite.

HBO Asia has given up equity stake to MCA and Sony in exchange for exclusive rights to release Columbia, TriStar and MCA/Universal films on HBO satellite service in Asia.

China Central TV has announced plans to distribute nation-wide pay TV movies, sports and cultural programming starting in June. Service will launch with 16 hours daily, expand to 24.

Twenty-four Maori / Iwi radio stations are to be interconnected utilising Optus Ku satellite with funding largely coming from New Zealand on Air. The project was first proposed in 1993, is now working its way through invitations to bid stage with 3.7m antennas a likely choice.

7.5m (one at A$28,000) and 6.5m (four at A$20,000 each) commercial grade (Andrew) dishes are available at wharfside in Brisbane from The Satellite Shop (FAX 61-75-960-962). The dishes were recently removed from a commercial installation in Queensland.

DIGITAL TV AND RADIO

BBC has announced plans to launch digital format television before the end of 1997 to 80% of UK viewers. The plan is to offer 12 additional programming channels along side existing 4 analogue services with phase out of analogue services at some point between 2007 and 2012.

STAR TV's PACE and NTL developed digiSTAR hardware continues to work out design problems inherent with the multiple language formats required for the on-screen graphics and the system info (SI) data stream service. Virtually all work done to date for such services is based upon the ASCII character set. The Japanese and Chinese have tackled the problem on a local (national) level but digiSTAR will serve more than 60 countries with many diverse languages. Some, like Thai, are not based upon "western" ASCII characters. Getting the digiSTAR CDV service functional is a "piece of cake;" the support services including on screen captioning quite another challenge.

General Instrument (GI) has submitted world-standard Digicipher II (MPEG 2 compatible) encoder and decoders (IRDs) to Cable Labs for final testing. GI plans shipment of the PAL-NTSC compatible version of Digicipher by July, to replace present Digicipher 1.5 system now in use in Pacific (Australia on Optus, ABS-CBN on PAS-2).

Japan's Hi-Vision analogue format high definition television system is seeing remarkable increase in sales which Japanese analysts suggest is due to price cut for basic HDTV receiver to NZ$8,500. Matsushita expects to sell 20,000 of the receivers in first three months of 1995, rising to 200,000 sets in 12 months ending March 1997. Receivers will require adapter for use with compressed digital video sources, projected to cost around NZ$1,700.

US (digital) HDTV prototype development test project using consensus approved standards in real world field tests has been set back. Suppliers General Instruments and Bell Labs missed delivery for encoder-decoder units which will run at least 6 weeks behind scheduled delivery date of late December. Once the equipment is installed and tests begin, a five month period was scheduled for system analysis at David Sarnoff Centre in Princeton (NJ) before final report will be given for adoption of the MPEG-2 HDTV standard for USA.

CONSUMER ELECTRONICS

CD-i / Video CD update. Philips, primary supplier of technology, claims there will be 1,000,000 CD-i players in public hands by May and their own brand of CD-i will pass million point late in 1995. Many home computer systems now offer video CD player option as a PC card with CD-ROM drive. One interesting statistic: A video CD title must sell between 3,000 and 5,000 copies to break even with pressing charges in the marketplace and this relatively low cost is encouraging many smaller producers to put out video CD material.

Digital Videodisc proposed "standards" have been issued by Philips and Sony as proposal to bring together the many varying technical approaches to the new product area and to avoid a Beta vs. VHS squabble down the road. Their proposal suggests a CD capable of storing 3.6 Gb (gigabits) of data, approximately 5 times that of current CDs, on a single-sided 5" high density platform. This would allow 135 minutes of MPEG-2 level video to be pressed into each disc along with matching multiple language audio and control data. A dual-layer disc version would contain up to 7.4 Gb of data. However, there was immediate responses from Toshiba which claimed it now has ability to store 4.8 Gb per side on a two-sided disc. Sony countered by suggested their new technology could be adapted to existing CD manufacturing facilities with little or no change in the equipment required to make the new discs. To which Toshiba responded by claiming its disc video quality and ease of disc replication, while requiring new manufacturing facilities, is superior to Sony and Philips. The first basic "standard' to be settled is whether DVD discs will be one or two sided.

Fuji has announced 5 to 7% increase in blank VHS tape charges and Sony says it is being forced to raise prices (first) in Europe by as much as 15%. "Raw material costs" are cited as reason for rise which is expected to be met by virtually all other VHS tape suppliers. Fuji expects prices at dealer level to go up by as much as NZ$0.17. How that ultimately translates to retail pricing remains to be seen. Price rises go into effect 15 February.

Thomson Consumer Electronics will be first major manufacturer to offer consumers "Commercial Killer" home VCR units. The machines actually record the commercials as broadcast but on playback detect the presence of commercials and fast forwards the tape through commercial with a few seconds of blank (blue) screen.

Flash Memory recorders announced by (US) Norris Communications and scheduled for July 1994 shipment are now in marketplace. Units use solid state (flash) memory to store voice quality sounds with first models priced at US$249.

Video goggles, worn on head and viewed inside 'enclosure' to eliminate outside influences, will get a new 'shot' in US marketplace by March. Virtual I/O, Seattle based company in partnership with cable giant TCI will offer "i-glasses" for NZ$1018 through electronic retailers, speciality catalogues. An accessory piece, head-tracking motion sensor for virtual reality games, will be added in April at NZ$340. Glasses use pair of 0.7" (17.8mm) colour LCDs to create image that "floats" magically in front of wearer at approximately 3.4m distance, will accept virtually any video input (NTSC only initially).and come with stereo earplugs. In the game market, Sega will introduce a similar product for its new 32-bit Saturn system.

Timex, manufacturer of low-end consumer wrist watches, has teamed with Data Broadcasting to create new device that will display latest sport scores, financial information and news headlines on user's wrist ... in addition to usual watch functions.

900 MHz band, new home of wireless telephones, will have possible frequency competition. Recoton has shown new range of audio speaker systems which include 900 MHz receiver. Speakers, with built-in audio amplifiers at 10 to 25 watt power level, receive audio from audio playback equipment, radio receivers, TV equipment and broadcast it

STATUS OF MMDS IN NEW ZEALAND

In 1990 Management Rights to 12 analogue bandwidth (8 MHz) 'TV' channels were sold by government in the 2,300 - 2,396 MHz band. In many areas of the world these frequencies are utilised for "wireless cable" service; in effect, a miniature version of SKY's UHF service operated in the higher frequency band. The twelve channels are individually separate and nation-wide in scope. Eight of the channels were bid for and won by Telecom; two by a company calling itself Multiband Television Limited, and one each by Broadcast Communications Limited (BCL) and Sky Television Limited. To date none of the channels are known to be operational.

Telecom elected to view its Management Right as an asset to be rented or leased out to others. These rights extend until 2010.

Elsewhere, typical MMDS (or MDS as it is sometimes known) systems utilise a 10 to 100 watt transmitter with the transmitting antenna located at an elevated site. Coverage is typically limited to line-of-sight which depending upon the height of the transmitting antenna may afford coverage over a radius of from 10 to 55km. Most MMDS systems encode their transmissions and sell multiple channels of television programming for a monthly fee; thus, "wireless cable" or the same class of programming normally found on a cable TV system but delivered to subscriber homes through the air rather than through coaxial cable. One of the primary advantages of MMDS is its ability to reach most of the homes in an area, quickly, without the time consuming and expensive need to lay cable and amplifiers. MMDS fees are usually very similar to cable TV fees and often the programming is identical or very similar. Some cable TV operators operate MMDS as a means of extending cable service into thinly populated or rural areas without the expense of cable itself. The primary disadvantages to MMDS are its often easily pirated (security breached) encryption system and the blockage of transmission paths by trees with foliage, buildings and hills. With MMDS, subscriber homes are equipped with a relatively inexpensive receiving antenna (typically a small dish or yagi type), and an antenna mounted "downconverter" that shifts the incoming microwave frequencies to a range easily tuned by a standard TV set (such as Band I). The antenna plus electronics typically costs the MMDS operator between NZ$140 and $200 per home; a cost (plus installation labour, cable, mast and hardware) that must be paid for each subscribing home.

Because the channels are contiguous and of the same width as UHF (band IV and V) broadcasting channels in New Zealand, most MMDS systems treat the spectrum as an extension of UHF broadcasting. For each MMDS channel, one analogue TV channel can be broadcast. MMDS operators in North America plan to implement MPEG compressed digital video by the end of this year and that will allow as many as ten TV programme "channels" to be transmitted in the spectrum space now used by a single analogue channel.

A holder of a single MMDS channel in New Zealand could also do the same here; offering as many as ten separate pay channels within the 8 MHz spectrum. Most New Zealand would-be system planners to date have concentrated on acquiring lease rights to at least 6 analogue (8 MHz wide) channels believing that to be competitive with SKY they must offer as many, or more, channels of service.

Telecom, as the largest holder of analogue MMDS channels (8 out of the 12 originally offered), elected in 1993 to offer the channels on a geographic basis. They also elected to create an arbitrary twin classification ('A' and 'B' channels) and assigned separate annual costs to each classification. The first (and perhaps the only to date actually leased) covers the Auckland region. Since the 12 MMDS frequency channels are for all practical purposes absolutely identical in bandwidth and other characteristics (including coverage range), Telecom's creation of 'A' and 'B' channel classes was driven by marketing, not technical considerations. Telecom is reported to have leased their 8 channels in the Auckland region as follows:

2 'A' channels for an 8 year term with a 4 year extension possible for an annual lease of NZ$14,340 (plus GST) per channel

6 'B' channels for a 3 year term with a 2 year extension possible for an annual lease of NZ$11,470 (plus GST) per channel

At the time of the lease the contract-party was not identified; CTD has learned that it is an American firm with considerable experience in this field. Telecom has offered similar lease term arrangements in other portions of New Zealand as well. Wellington, the nation's second market by size, is unsuited to the line of sight characteristics of MMDS because of the very irregular terrain. Christchurch, on the other hand, could be well served by MMDS provided the transmitter location was carefully chosen.

In Auckland, while it would be possible to cover a portion of the market from a single transmitter site, as telecasters have learned three sites are almost mandatory. Site studies by the American firm are now underway.

in 900 MHz band over range considered adequate to allow users to place monaural or stereo speaker systems at any location they wish within typical 'home' without running a single wire. Recoton has been granted broad (US) patents on its 900 MHz wireless speaker technology.

V-chip technical standards have been adopted by US EIA and are prelude to introduction of optional violence monitoring programme rating system in US. With system, programmes will contain electronic rating code at beginning to alert V-Chip equipped receivers that programme to follow contains a specified level of violence. Viewers will be able to programme their receivers and remotes to a maximum level of violence as a censor to children stumbling into programming parents may find undesirable.

Sony's Columbia Tristar Home Video division has announced new digital movie video mastering technique which it claims will "greatly enhance the picture quality on (analogue) video cassettes and laserdiscs." The new system adds a digital processing stage to the normal film to tape transfer for masters with improvements claimed in video noise levels, vertical picture edge stability and colour rendition. Sony believes the quality of the cassettes and laserdiscs so processed will give Columbia Tristar a competitive edge in the video marketplace.

China is adopting new regulations to curb use of its "cheap labour' for production of low and medium tech electronic products. China's TV set production in 1994 was up 19% from 1993. Under the new regulations, foreign firms operating plants in China must provide leading edge technology for product manufacture and failing that, firms will not be allowed access to Chinese labour market.

US threats to double tariffs on annual import of goods from China amounting to US$3B if China does not close down piracy audio and video tape programming is serious. China tried to shove concern under carpet, US set February 4 deadline for China to either comply with international copyright accord (as adopted within the GATT agreement) or immediately face a doubling of import tariffs on wide range of products. An estimated US$1B in Chinese products, now in the pipe line to USA, would be immediately impacted. One of the more "bizarre" aspects of the piracy problem is CD and laserdisc plant built in Shenzhen by Philips. Plant has been identified as major contributor to bootleg, copyright violating, laserdiscs and music CDs. Philips says it sold its interest in plant in 1992; Chinese officials claim Philips still owns its original share.

How big is US "Home Entertainment" market? Sony believes is amounts to US$67B (NZ$114b) broken down as: Broadcasting US$22B, Cable TV US$20B, Video rental US$10B, Consumer hardware sales US$10B (TV sets US$7B), videotape US$5B and VCRs $2.5B.

CABLE/FIBRE TV

Kiwi Cable's cable plant expansion is reported to be increasing with several crews now working to install new cable lines radiating outward from the Paraparaumu central office. Kiwi Cable is carrying Country Music Television (CMT) from PAS-2 as an affiliate; previously it had been a tape-fed affiliate. Following the Copyright Tribunal decision (**CTD**: 9411, p.2) that ruled Kiwi Cable had no legal status to require ESPN affiliation, they have "built" their own sports channel from taped material available through multiple world services. Tony Goodman, Director of Corporate Relations, promises a decision concerning their plan to "share" such programming with other New Zealand cable TV systems by the first of February. Several cable system planners have contacted Goodman to express an interest in recycling Kiwi's offshore source programme tapes. (Tony Goodman, Kiwi Cable, PO Box 354, Parparaumu FAX 04-297-3358)

Pole and duct rental space, from utility company to private cable operators, is always subject for negotiation. Rates are seldom made public but in Hawaii a squabble between GTE Hawaii (telephone) and local cable operator has produced numbers: US$5.80 per pole per year and US$.14 per foot for duct space. Translating that to kilometres and the NZ dollar: $138.82 per kilometre per year for poles, and, $766.55 per kilometre for ducting (buried cable) (in Hawaii).

FCC, conducting detailed inquiries into telephone company plans for VDT (video dial tone), has begun to uncover potentially serious errors in telco projections for system capital costs and projected earnings. Under US regulations, telephone firms may not enter video-to-home marketplace without approval, and to gain approval they must convince FCC the VDT business is viable on its own and will not become a financial drag on existing telephone services. US regulates telcos rate-of-return earnings (11.7%) to keep cap on telephone profits since each telephone company has monopoly in its geographic area. FCC is concerned that if VDT approvals allow telcos to spend huge sums for video, and the businesses are not a success, the telephone firms will attempt to raise basic telephone rates as a way of recovering their VDT investments. To ensure this does not happen, each telephone company must prove its "financial case" prior to receiving coveted approval to build video system. Among the concerns voiced by the FCC:

REVISIT - THE 1994 COPYRIGHT BILL

Prior to breaking for the holidays Parliament adopted the first major revision in New Zealand Copyright law since the 1962 Act was passed. The new law was mandated by two factors: The rapid changes in (reproduction) technology since the 1962 Act, and, a requirement that New Zealand modernise its copyright legislation as a condition to being a participant in the (world-wide) GATT treaty accord of late 1993.

The new law draws new distinctions regarding the photo copying of publications (even by libraries), evokes specific language to protect material stored on CDs, videotape and film, and effects New Zealand's nascent cable television industry.

As CTD reported in December (9412; p.12) the new law draws heavily from legislation adopted in the UK in 1988 as well as new laws passed in the United States in 1992. When CTD went to press for our issue 9412 (on December 6, 1994) the language of the new law as it pertained to cable television systems was almost identical to language in the UK and USA laws previously enacted. Under that language, a cable TV system was entitled to pickup licensed commercial free-to-air television stations providing service to the same community as the cable TV system, and carry this programming to cable subscribers without payment of a copyright fee. The concept behind the UK and USA laws was that no matter how many "distant" or "foreign channels" the cable system might supply, its subscribers were entitled to receive the "local" programming as well and such programming could not be arbitrarily left off the cable system. The fear here was that cable systems should not become so powerful with "foreign" or "distant" signals that "local" stations were seriously disadvantaged by not having access to the cable subscriber homes. TVNZ had attempted to persuade members of Parliament, through the Select Committee that studied the many facets of the new law through most of 1994, that New Zealand is a 'special situation' and that 'no cable operator should be allowed to receive and retransmit (via cable) TVNZ programmes without making payment to TVNZ.'

As the Copyright Legislation was coming up for a vote, a "memo" appeared somewhat mysteriously in the office of all members of Parliament. At least one influential member of Parliament seized the final debate period relating to this bill to "read" excerpts of the "memo" to fellow members of Parliament (and a national audience listening in on the radio). The source of the "memo" was not disclosed to the body.

CTD has obtained a copy of this "memo" from the offices of a Member of Parliament and has been told the source of the "memo" was none other than TVNZ. The timing of the "memo" essentially left no opportunity to refute the statements made by the document and having been worked perhaps into a "frenzy" by the one-sided arguments offered, Parliament proceeded to vote to change the final Act such that TVNZ, TV3 and other free-to-air broadcasters could charge cable systems for carriage of their signals. We print the "memo" in its entirety on the opposing page here.

The "memo" argues that clause 82(3), originally inserted into the legislation at the insistence of TVNZ, had been removed from the final Act by the Select Committee "*at odds with the rules of commercial fair play.*" It further cites as an example the contracted fee between SKY Network and TVNZ for SKY carriage of certain (news) programmes on a delayed basis by SKY. Here the "memo" fails to acknowledge that SKY is significantly co-owned by TVNZ, that SKY's relationship with TVNZ is hardly at arms length, that SKY utilises publicly owned telecasting frequencies for its transmissions. The memo says "*The only difference between (*Telecom and Kiwi Cable*) operations and SKY is that SKY is delivered to subscribers by wireless.*"

The "memo" further claimed "*International programme companies could also refuse to sell TVNZ and TV3 programmes if they know the free-to-air networks can be taken by pay TV for nothing. In other countries, pay TV rights have to be negotiated at market rates.*" Actually, this is a poorly written misstatement of the real world facts. TV programmers sell programmes based upon their understanding of the audience size for a programme. New Zealand, as a whole, represents a "market" for these programmes, not merely Auckland alone or Kaitaia alone. TVNZ (and TV3) pay rates for programmes based upon the total New Zealand market. The broadcasters are charged a per-home-available fee based upon the total number of homes in New Zealand; not on the number of homes reached by any single transmitter. Cable homes are a small part of the whole of New Zealand. TVNZ has paid a fee for every home, whether the home receives its programmes with a rooftop antenna, via cable, or not at all. TVNZ would have Parliament believe that cable homes are a separate class of New Zealand homes. They are not. Well, they were not. Now, with the law modified to suit TVNZ, cable homes pay for their TV: **(a)** First, through their broadcast licence fee, **(b)** Second by purchasing the products so frequently advertised on TVNZ with the total cost of each product so advertised and purchased including a prorate share of the total advertising cost of each product; **(c)** Third, for the cable homes, who have already supported TVNZ (TV3 et al) through the first two levels of charges, they will now be charged a third "special copyright fee" because they have elected to view TVNZ through their local cable firm.

As of our deadline, neither TVNZ nor TV3 have apparently announced the fees they intend to charge to cable firms for their programming.

Although the present cable industry is very small in New Zealand, several dozen new systems are being planned, primarily by local entrepreneurs in isolated communities where normal television reception is poor. A steering committee for a planned cable television trade association in New Zealand is expected to recommend the following to its membership:

1) If the law cannot be modified (and there is little chance of this), cable firms operating in areas well served by TVNZ and TV3 should simply agree to **not carry** TVNZ nor TV3 services on their cable if either firm announces copyright fees in excess of a few cents per subscriber per month.

2) Where TVNZ or TV3 reception is of poor quality in a community, and cable service will actually make it possible for viewers to receive the national networks with a clear signal perhaps for the first time, cable operators will decline to carry TVNZ and TV3 on their **"basic"** service; electing, instead, to place the national channels on an optional **"tiered"** service where individual subscribers will have to pay an extra fee to have these channels in their home. This will provide the cable operator with an ideal opportunity to illustrate to subscribers how the law was established to ensure the continued self-interest of TVNZ. If, in a community of 1,000 homes, only 100 homes elected to subscribe to the "optional, tiered" offering comprised of TVNZ and TV3, then the cable operator would only be required to pay a per-home license fee for the (100) homes actually electing this service. In this way cable customers who have no need for the national networks via cable could elect not to have the service and the cable operator is not disadvantaged in the process nor would the cable subscribers who do not need the service be charged for something a third time after already paying for it twice.

We will keep you advised.

The Copyright Bill

"TVNZ expresses its concern at the decision of the Parliamentary Select Committee to remove clause 82(3) from the Copyright Bill. This clause provided that, where a licensing scheme was in place, cable operators would pay licence fees for the simultaneous transmission of broadcast programmes.

"The removal of clause 82(3) means that cable operators - such as Kiwi Cable and the new Telecom NZ venture - will be permitted to broadcast TVNZ's and TV3's free-to-air TV networks simultaneously on their cable networks without payment at market rates to the owners of the programmes. These owners include TVNZ, TV3, international producers, directors, writers and actors.

"We find this situation at odds with the rules of commercial fair play, and in contrast to the situation applying to Sky Television, a pay television operator that is covered by the law and must pay for our programming. Neither existing copyright law nor the provisions of the Bill allows Sky to take TVNZ's signal for nothing and rebroadcast it to Sky subscribers. Sky does screen TVNZ's Network One News at 8.30pm each night in return for payment of an agreed fee. It would be sensible to apply the same principle to pay TV cable operators. The only difference between the two pay TV systems is that Sky is delivered to subscribers by wireless and Telecom and Kiwi Cable use cable.

"International programme companies could also refuse to sell TVNZ and TV3 programmes if they know the free-to-air networks can be taken by pay TV for nothing. In other countries, pay TV rights have to be negotiated at market rates.

"Our solution is a licensing scheme which enables the pay cable TV operators to have access to free-to-air networks for an agreed fee, or in the absence of an agreement, for a fee set by the Copyright Tribunal. TVNZ and TV3 are willing to enter into commercial agreements with pay TV cable operators in New Zealand for the transmission of their programmes. We are not interested in refusing access to free-to-air networks but in gaining a fair price for the considerable intellectual property involved. both for TVNZ and all other owners of copyright in broadcast programmes. The solution was in the Copyright Bill as first placed before the Select Committee. It should be kept in the legislation.

"At the very least a provision should be included in Clause 82 to prohibit any interference with any technical and programming/advertising elements of the broadcasts. (30 November 1994)."

Some VDT business projections, to justify the costs being projected are predicting as high as 50% of the homes passed will subscribe to the service by the end of the second year; Some multi-state telcos predicted widely ranging costs-per-home for VDT in immediately adjacent states where the same system will serve both states; One telephone company predicted that only 18% of its revenues would be required to pay for operating costs, but also said 50% of revenues are now required to pay its cost of operating the telephone system; Another telephone operator projected costs of US$291 per home passed for fibre optic two-way system against a per-home cost of US$765 for a traditional one-way coaxial cable TV network. New Zealand Telecom's Bell Atlantic was one of four telephone firms quizzed about the material they submitted to the FCC. Bell Atlantic was accused of sloppiness in their FCC data as well: They forecast 100% of all homes passed would subscribe to basic "broadband service" when in fact only 95% now subscribe to their telephone service.

Ameritech, involved in local Sky system, won approval for five VDT systems that will serve 1.3m (US) homes. The firm plans VDT in Chicago and Detroit,, each offering 470 television channels, and plans to spend US$4.4B over next 15 years for hybrid fibre-optical systems.

Time Warner Full-Service Network test in Orlando, Florida moved from limited testing to general availability to 4,000 cable TV customers in December. System provides high level of interactivity allowing subscribers access to catalogue and retailer store shopping and product "inspection" through special set-top controller box built for test.

Marketing test results from joint AT&T and TCI test of video on demand (VOD) marketing in Denver suburbs: 70% of the homes that had VOD available used it each month. Of those using system, they averaged 2.5 movies per month ordered through system at per-movie cost of US$0.99 to $3.99. Even at $3.99 per movie, 2.5 movies per month only equals US$9.98 per month gross revenues per home, against average installation cost for VOD system of more than US2,500 per home (250 months to even return the capital cost).

TCI has partnered with Japanese cable MSO Sumitomo and will own 40% of new jointly owned Jupiter Telecommunications. Sumitomo operates 6 cable systems in Tokyo suburbs passing 775,000 homes. TCI has also announced 80% purchase of Cablevision S.A. de Argentina which presently has 450,000 subscribers.

TERRESTRIAL BROADCASTING

Discovery Channel programming began relay via PAS-2 in Scientific Atlanta PAL format B-Mac December 24th to Sky Network in New Zealand.

TV3 has publicly refused to carry future Sky Network advertising, citing conflicts between TV3 and Sky scheduled programming. Spokesperson Annemarie Browne suggested "*Overseas it would be unheard of to telecast a competitive company's advertising.*" Actually, that is not true. US networks ABC, CBS and NBC are frequently used for promotion of cable service HBO and others while competitive cable programmers routinely advertise on each other's service.

Australis / Galaxy over the air MMDS pay TV service launching in Australia will use US built Conifer 2.3 GHz antennas and downconverters in Sydney and Melbourne markets.

France has launched fifth nation-wide TV network patterned after US PBS and Britain's Channel 4. Network, reaching 80% of French homes, operates 7AM to 7PM and is dedicated to providing "violence free programming."

Chatham Islands are being promoted as location from which "The World" will first welcome the 21st Century and multi-million TV production remote broadcasts are in the offering. Chathams were site for (midnight) January 1 (1990) TV ceremony and several prominent world class sponsors (Coca-Cola et al) are behind project to haul massive amounts of video production gear and sizeable contingent of TV production people to the islands. A "dry run" is planned for January 1, 1996 with various Asian and European broadcasters to participate.

Summertime Trans-Tasman TV interference report. Although anomalous VHF band long distance propagation was first recorded in the mid 1930s shortly after the first TV experimentation began in this frequency band, the exact cause of the long distance "skip" that connects Australian TV telecasters to western coast New Zealand viewers remains a mystery. As with the weather, year to year variations are considerable and this year's observations suggest that the frequency of the unwanted propagation has been lower than other recent summers. However, at times when it is severe TV viewers in communities such as Greymouth are experiencing hours of interference for their TV2 reception on VHF band I channel 3 this year; more so than in recent years. Significant dates with interference recorded along western coastal areas from Greymouth to Kaitaia since our last report include December 7, 8,,10, 12, 13,15,16,19, 20; January 4,9,19,11, 12, and 13. Significant interference during afternoon / early evening hours between New Zealand stations in South and North Island was also recorded January 11, 12 and 13 on TV channels 1,2 and 3 as well as FM broadcast stations between north half North Island, south half of South Island.